



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,784	06/10/2005	Michael McNiven Rumsey	TTP104246	4306
20/280	7590	03/05/2009	EXAMINER	
MOTOROLA INC			YU, LIHONG	
600 NORTH US HIGHWAY 45				
W4 - 39Q			ART UNIT	PAPER NUMBER
LIBERTYVILLE, IL 60048-5343			2611	
		NOTIFICATION DATE	DELIVERY MODE	
		03/05/2009	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DOCKETING.LIBERTYVILLE@MOTOROLA.COM
ADB035@Motorola.com

Office Action Summary	Application No. 10/538,784	Applicant(s) RUMSEY, MICHAEL MCNIVEN
	Examiner LIHONG YU	Art Unit 2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 21 January 2009.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 14-34 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 14-34 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 10 June 2005 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-145/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____

5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Response to Arguments

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 21, 2009 has been entered.

2. Applicant's arguments, filed on January 21, 2009, with respect to the final office action, have been considered but are moot in view of the new ground of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14-17, 19-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al (US 6,229,856 B1) in view of Wang et al (US 6,266,365 B1).

Consider claims 14 and 20:

Diab discloses an apparatus for preparing a signal, which has been received at a wireless communication device, to be processed by a receiver which will attempt to recover information conveyed by the signal (*see Diab at col. 2, lines 1-33, where Diab describes an invention that includes time division multiplexing demodulation which is known to support wireless communication; see Diab at col. 2, lines 11-33, col. 27, lines 59-63, where Diab describes selecting certain harmonics of a signal for demodulation by a receiver and multi-channel pre-demodulation*), the apparatus comprising:

- a filter adapted to filter the signal in a digital form (*see Diab at Fig. 18, block 1820, 1840, 1830, and 1834*) having samples appearing at a sample rate (*see Diab at col. 28, lines 27-63, where Diab describes the received signal is sampled by a A/D converter before being provided to the digital low pass filters*),
- an adjuster (*see Diab at Fig. 18, block 1850*) adapted to adjust the sample rate (*see Diab at col. 27, lines 59-65, and col. 28, lines 32-35, where Diab describes an adjustable decimation rate is provided by an adaptive algorithm block*),
- wherein the filter is capable of filtering the signal in both a first manner which is required when the receiver is of a first type and in a second manner which is required when the receiver is of a second type (*see Diab at col. 27, lines 59-67, col. 28, lines 1-26, where Diab discusses multi-channel demodulation with multiple signal inputs*),

- wherein the adjuster is adapted to perform adjustments to the sample rate when the receiver is of the second type (*see Diab at col. 28, lines 27-53, where Diab describes the adaptive algorithm block controls sample rate compression*), and
- the adjustments comprise altering the sample rate before the signal is filtered to permit the filter to perform filtering in the second manner (*see Diab at col. 28, lines 27-63, where Diab describes reducing the sample rate before digital low pass filtering*), and
- altering the sample rate after the signal has been filtered to provide the signal with a sample rate required by the second type of receiver (*see col. 27, lines 59-65, and col. 28, lines 40-67, col. 29, lines 25-40, where Diab teaches post-demodulation decimation*).

However, Diab does not disclose the filter performs filtering in the first manner without the adjustments to the sample rate when the receiver is of the first type.

Wang teaches a filter performs filtering in a manner without the adjustments to the sample rate when the receiver is of a first type (*see Wang at Fig. 2, col. 3, lines 50-67 and col. 4, lines 1-40, where Wang shows a rake receiver that receives signal from a filter without sampling rate adjustment such as decimation/interpolation*).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Diab, and to perform filtering in the first manner without the adjustments

to the sample rate when the receiver is of the first type, as taught by Wang, thus allowing for a wider band communication system, as discussed by Wang (*see Wang at col. 1, lines 59-67*).

Consider claims 15 and 21:

Diab in view of Wang discloses the invention according to claims 14 and 20 above. Diab discloses the adjuster is adapted to change to said sample rate by a fractional factor (*see Diab at col. 23, lines 1-20, col. 6, lines 35-37*).

Consider claims 16 and 22:

Diab in view of Wang discloses the invention according to claims 14 and 20 above. Diab discloses the filter comprises an FIR filter (*see Diab at Fig. 18, block 1820, 1840, 1830, and 1834*) with adjustable tap coefficients which can be adjusted to allow the filter to perform filtering in the first manner and in the second manner (*see Diab at col. 28, lines 32-35, col. 29, lines 13-25, where Diab describes the adaptive algorithm provides filter coefficients*).

Consider claim 17:

Diab in view of Wang discloses the invention according to claim 14 above. Diab discloses the filter is adapted to correct errors introduced by the adjuster (*see Diab at col. 28, lines 54-63 and Fig. 18, where Diab describes the output of the filter is also a feedback to the adaptive algorithm block*).

Consider claim 19:

Diab in view of Wang discloses the invention according to claim 14 above. Diab discloses a participant for a wireless communications network, the participant comprising the apparatus of claim 14 (*see Diab at col. 2, lines 1-33, where Diab describes an invention that includes time division multiplexing demodulation which is known to support wireless communication*).

Consider claim 24:

Diab in view of Wang discloses the invention according to claim 14 above. Diab discloses a mixed signal section for a participant for a wireless communications network, the mixed signal section comprising the apparatus of claim 14 (*see Diab at Fig. 16, item 194, and col. 25, lines 53-65, where Diab describes an adder that generates a composite signal from modulated input signals; see Diab at col. 2, lines 1-33, where Diab describes the signals are of time division multiplexing demodulation which is known to support wireless receivers*).

5. Claims 18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al (US 6,229,856 B1) in view of Wang et al (US 6,266,365 B1), as applied to claims 14 and 20 above, and further in view of Czaja et al (US 6,567,666 B2).

Consider claims 18 and 23:

Diab in view of Wang discloses the invention according to claims 14 and 20 above. Diab does not specifically disclose the first type of receiver is a receiver operating according to a 3G telecommunications standard and comprising a rake receiver for operating on the signal and the

second type of receiver is a receiver operating according to a 2G telecommunications standard and comprises an equalizer for operating on the signal.

Czaja teaches first type of receiver is a receiver operating according to a 3G telecommunications standard and comprising a rake receiver for operating on the signal and the second type of receiver is a receiver operating according to a 2G telecommunications standard and comprises an equalizer for operating on the signal (*see Czaja at col. 3, lines 65-67, col. 4, lines 1-14, col. 5, lines 13-29*).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Diab, and have first type of receiver is a receiver operating according to a 3G telecommunications standard and comprising a rake receiver for operating on the signal and the second type of receiver is a receiver operating according to a 2G telecommunications standard and comprises an equalizer for operating on the signal, as taught by Czaja, thus allowing better quality of service, as discussed by Czaja (*see Czaja at col. 2, lines 9-20*).

6. Claims 25, 26, 28-30, 32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al (US 6,229,856 B1) in view of Eom (US 6,625,279 B1).

Consider claims 25 and 32:

Diab discloses in a wireless receiver an apparatus for processing a signal in form of digital samples appearing at a sample rate (*see Diab at col. 2, lines 1-33, where Diab describes time division multiplexing demodulation which is known to support wireless receivers; Diab teaches a sampling rate of 46,875 Hz to obtain digital signals*), the apparatus comprising:

- a decimator for bypassing the signal when the wireless receiver is of a first type and altering the sample rate of the signal when the wireless receiver is of a second type (*see Diab at Fig. 18, col. 27, lines 59-65, and col. 28, lines 32-35, where Diab describes an adjustable decimation rate is provided by an adaptive algorithm block 1850; see Diab at col. 29, lines 49-64, where Diab describes the adaptive algorithm selects the decimation rate $R_1 = 1$ for signal of higher order harmonics, that is, bypassing decimation; Diab also teaches selecting decimation rate $R_1 = 37$ for sampling rate reduction of 37 times*);
- filtering the bypassed signal when the wireless receiver is of the first type and filtering the decimated signal when the wireless receiver is of the second type (*see Diab at Fig. 18, blocks 1840, 1830, 1834, and col. 29, lines 13-25, where Diab describes low pass filtering the decimated signal and the bypassed signal*); and
- an adaptor for altering the sample rate of the filtered signal when the wireless receiver is of the second type (*see Diab at Fig. 18, blocks 1840, 1830, 1834, and col. 28, lines 54-63, where Diab describes adaptive decimation for filtered signals*)

Diab does not disclose the above filtering is by a single filter.

Eom teaches filtering such signal with a single filter (*see Eom at Fig. 2, item 230, and col. 4, lines 47-60*).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Diab, and to filter the signals from the decimator with one filter, as

taught by Eom, thus allowing for echo cancellation, as discussed by Eom (*see Eom at col. 2, lines 12-14*).

Consider claim 26:

Diab in view of Eom discloses the apparatus according to claim 25 above. Diab discloses another decimator for decreasing the sample rate of the filtered signal (*see Diab at Fig. 18, block 1840, 1830, 1834 and col.28, lines 54-63, where Diab describes adaptive decimation blocks*).

Diab does not disclose an interpolation unit for increasing the sample rate of the filtered signal. Since Diab discloses decreasing the sample rate of the filtered signal, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Diab, and to increase the sample rate. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose, 105 USPQ 237 (CCPA 1955)*.

Consider claim 28:

Diab in view of Eom discloses the apparatus according to claim 25 above. Diab discloses the filter is adapted to correct errors introduced by the decimator (*see Diab at col. 29, lines 49-64, where Diab describes the filtering is to improve the quality of the output in high ambient noise environments*).

Consider claim 29:

Diab in view of Eom discloses the apparatus according to claim 25 above. Diab discloses a switch electrically connected with the decimator for selecting the signal received from one of the first type of wireless receiver and the second type of wireless receiver (*see Diab at Fig. 18,*

blocks 1850, 1820, and col. 29, lines 49-64, where Diab describes the adaptive algorithm selects decimation rates for different signals).

Consider claim 30:

Diab in view of Eom discloses the apparatus according to claim 29 above. Diab discloses another switch electrically connected with the decimator for bypassing the signal (*see Diab at col. 29, lines 49-64, where Diab describes the adaptive algorithm selects the decimation rate R₁ = 1 for signal of higher order harmonics, that is, bypassing decimation*).

Consider claim 34:

Diab in view of Eom discloses the apparatus according to claim 25 above. Diab discloses a mixed signal section for a participant for a wireless communications network, the mixed signal section comprising the apparatus of claim 25 (*see Diab at Fig. 16, item 194, and col. 25, lines 53-65, where Diab describes an adder that generates a composite signal from modulated input signals; see Diab at col. 2, lines 1-33, where Diab describes the signals are of time division multiplexing demodulation which is known to support wireless receivers*).

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al (US 6,229,856 B1) in view of Eom (US 6,625,279 B1), as applied to claim 25 above, and further in view of Nguyen et al (US 5,321,559).

Consider claim 27:

Diab in view of Eom discloses the apparatus according to claim 25 above. Diab disclose the filter is low pass filter which allows the filter to perform filtering in the first manner and in the second manner (*see Diab at Fig. 18, blocks 1840, 1830, 1834, and col. 29, lines 13-25, where Diab describes low pass filtering the decimated signal and the bypassed signal*), however, Diab does not disclose the low pass filter is an FIR filter with adjustable tap coefficients.

Nguyen teaches a low pass filter that is an FIR filter with adjustable tap coefficients (*see Nguyen at Fig. 14, item 48, col. 18, lines 60-68 and co. 19, lines 1-10*).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Diab, and to have that the low pass filter is an FIR filter with adjustable tap coefficients, as taught by Nguyen, thus allowing for better adaptation to system changes.

8. Claim 31 and 33 rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al (US 6,229,856 B1) in view of Eom (US 6,625,279 B1), as applied to claims 25 and 32 above, and further in view of Czaja et al (US 6,567,666 B2).

Consider claims 31 and 33:

Diab in view of Eom discloses the invention according to claims 25 and 32 above. Diab does not disclose the first type of wireless receiver is a receiver operating according to a 3G telecommunications standard and comprising a rake receiver for operating on the signal and the wireless second type of receiver is a receiver operating according to a 2G telecommunications standard and comprises an equalizer for operating on the signal.

Czaja teaches first type of receiver is a receiver operating according to a 3G telecommunications standard and comprising a rake receiver for operating on the signal and the second type of receiver is a receiver operating according to a 2G telecommunications standard and comprises an equalizer for operating on the signal (*see Czaja at col. 3, lines 65-67, col. 4, lines 1-14, col. 5, lines 13-29*).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Diab, and have first type of receiver is a receiver operating according to a 3G telecommunications standard and comprising a rake receiver for operating on the signal and the second type of receiver is a receiver operating according to a 2G telecommunications standard and comprises an equalizer for operating on the signal, as taught by Czaja, thus allowing better quality of service, as discussed by Czaja (*see Czaja at col. 2, lines 9-20*).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIHONG YU whose telephone number is (571) 270-5147. The examiner can normally be reached on 8:30 am-7:00 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lihong Yu/
Examiner, Art Unit 2611
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611